Records of cephalopod species collected during deepwater surveys at Galicia Bank.

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INTRODUCTION AND OBJETIVES

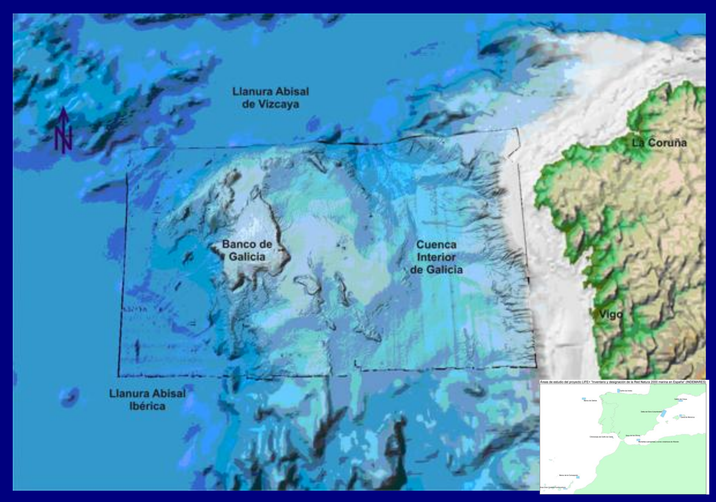
Galicia Bank is a large seamount located at 150 miles far from the west coast of Galicia (Spain). This deep seamount has a flat summit with slight slopes from 600 m to the bank break around 1000 m. Deeper 1500 m on its western flank, slope increases sharply until it reaches the abyssal plain, at 4000-5000 m deep.

The capture of cephalopods at the area was scarce during the INDEMARES-BANGAL surveys. In this work we present the first data on deepwater cephalopods detected in this candidate to Marine Protected Area and document the recording of rare species off northwest Iberian waters.

MATERIAL AND METHODS

The fauna of Galicia Bank was sampled at bottom depths of 600-1500 m on three cruises in 2009, 2010 and 2011. Epibenthic fauna was collected with a beam trawl (10 mm mesh size), whereas demersal fauna were collected with a GOC73 otter trawl (20 mm mesh size).

Biological sampling of all catches of every cephalopod species was carried out including weight, measure (total mantle length), sex and maturity stage following a standard protocol.



SPECIES RECORDED

We identified 11 cephalopods collected by GOC73 otter-trawling belonging to 8 species. Except for *Todarodes sagittatus* all specimens are first records for Galicia Bank.

***Graneledone verrucosa* (Verrrill, 1881)**
Species that inhabits deep water throughout the North Atlantic; its distribution extends from 20° to 65° N and from 9° to 75° W.

***Opisthoteuthis grimaldii* Joubin, 1903**
Known for certain only from the eastern Atlantic: Rockall Trough, Acores Islands and off Cape Blanc in the North Atlantic; and off Namibia in the South Atlantic. The species appears to be the deepest occurring *Opisthoteuthis* in the Atlantic, collected from 1135 to 2287 m depth.

***Stauroteuthis syrtensis* Verrill, 1879**
This cirroctopus is broadly distributed in the North Atlantic at depths of 700-4000 m with a peak abundante at 1500-2500. This is the most southern record of the species in the East Atlantic.

***Taonius pavo* (Lesueur, 1821).**
Mesopelagic speies. *Taonius pavo* is known to be widely distributed in the open Atlantic Ocean midwaters from about 45°N to the Southern Subtropical Convergence; it may extend into the Indian Ocean in association with the Agulhas Current .

***Gonatus steenstrupii* Kristensen 1981**
Widely distributed in the temperate (Bay of Biscay) to boreal (Irminger Sea-East Greenland) waters, North Atlantic and east of the Grand Banks of Newfoundland; not entering arctic waters.

***Teuthowenia megalops* (Prosch, 1847)**
Epi-mesopelagic squid. *Teuthowenia megalops* occupies the highly productive waters of the sub-Arctic and northern temperate Atlantic Ocean. In the eastern Atlantic, *T. megalops* occurs from between Greenland and Iceland (65°N to 66°N) to about 44°N to 45°N in the Azores-Britain region of the North Atlantic temperate zone.

***Mastigoteuthis aff hjorti* Chun 1913**
Deep sea pelagic or benthopelagic squids. Very broadly distributed, possibly as a tropical-subtropical circumglobal species with northern limits of about 40°N and southern boundaries undetermined. It occurs in the North Atlantic Ocean from eastern regions of the Gulf of Mexico, northward to Bermuda and to the Gulf of Maine, in the western North Atlantic Ocean, and in the eastern Atlantic Ocean, off South Africa, the central Pacific Ocean and the Indian Ocean.

***Todarodes sagittatus* (Lamarck, 1798)**
A neritic and oceanic species that occurs from the surface to well over 1 000 m distributed in Eastern North and South Atlantic Ocean from the lower Barents and Kara Sea (Arctic Ocean) southward to about 13°S (south of the Gulf of Guinea), including the North Sea, the Mediterranean Sea and the Marmara Sea. In the North Atlantic it extends to the mid-Atlantic Ridge.

Survey	Haul	Depth	Species	Tipo	Sex	Weigth	DML	TL
BANGAL 11	BG1_L10	1808	*Graneledone verrucosa* (Verrill, 1881)	Specimen	F	1127	151	456
BANGAL 11	BG1_L9	1683	*Opisthoteuthis grimaldii* Joubin, 1903	Specimen	F	690	66	284
BANGAL 11	BV1_L8	1565	*Opisthoteuthis grimaldii* Joubin, 1903	Specimen	M	318	37	2217
BANGAL 11	BG1_L8	1450	*Opisthoteuthis grimaldii* Joubin, 1903	Specimen	F	99	27	140
BANGAL 11	BG1_L10	1808	*Stauroteuthis syrtensis* Verrill, 1879	Specimen	F	1377	185	586
BANGAL 11	BG1_L10	1808	*Stauroteuthis syrtensis* Verrill, 1879	Specimen	M	699	112	550
BANGAL 11	BV1_L8	1565	*Stauroteuthis syrtensis* Verrill, 1879	Specimen	M	623	112	530
BANGAL 11	BG1_L8	1450	*Teuthowenia megalops* (Prosch, 1847)	Specimen		17	115	
BANGAL 11	BG1_L8	1450	*Mastigoteuthis aff hjorti* Chun 1913	Specimen		84	103	
BANGAL 10	BG1_L1	766	*Todarodes sagittatus* (Lamarck, 1798).	Specimen	F	184	21	
BANGAL 10	BG1_L4	1016	*Todarodes sagittatus* (Lamarck, 1798).	Specimen	F	2010	41	
BANGAL 11	BG1_L9	1683	*Todarodes sagittatus* (Lamarck, 1798).	Beak		1360		
BANGAL 11	BG1_L11	765	*Todarodes sagittatus* (Lamarck, 1798).	Beak				
BANGAL 11	BG1_L9	1683	*Gonatus cf steestrupii* Kristensen, 1981	Beak		25		
BANGAL 11	BG1_L8	1450	*Gonatus steenstrupii* Kristensen, 1981	Digested body	-			
BANGAL 11	BG1_L10	1808	*Taonius pavo* (Lesueur, 1821)	Mantle	-			

Table 1. Cephalopods species recorded during BANGAL surveys (2009-2011).

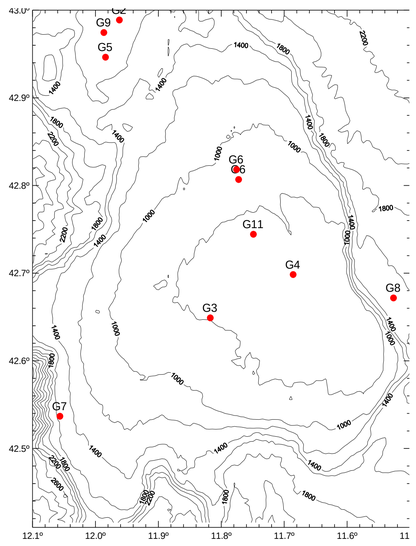


Figure 11. Map of Galicia Bank GOV sampling stations.

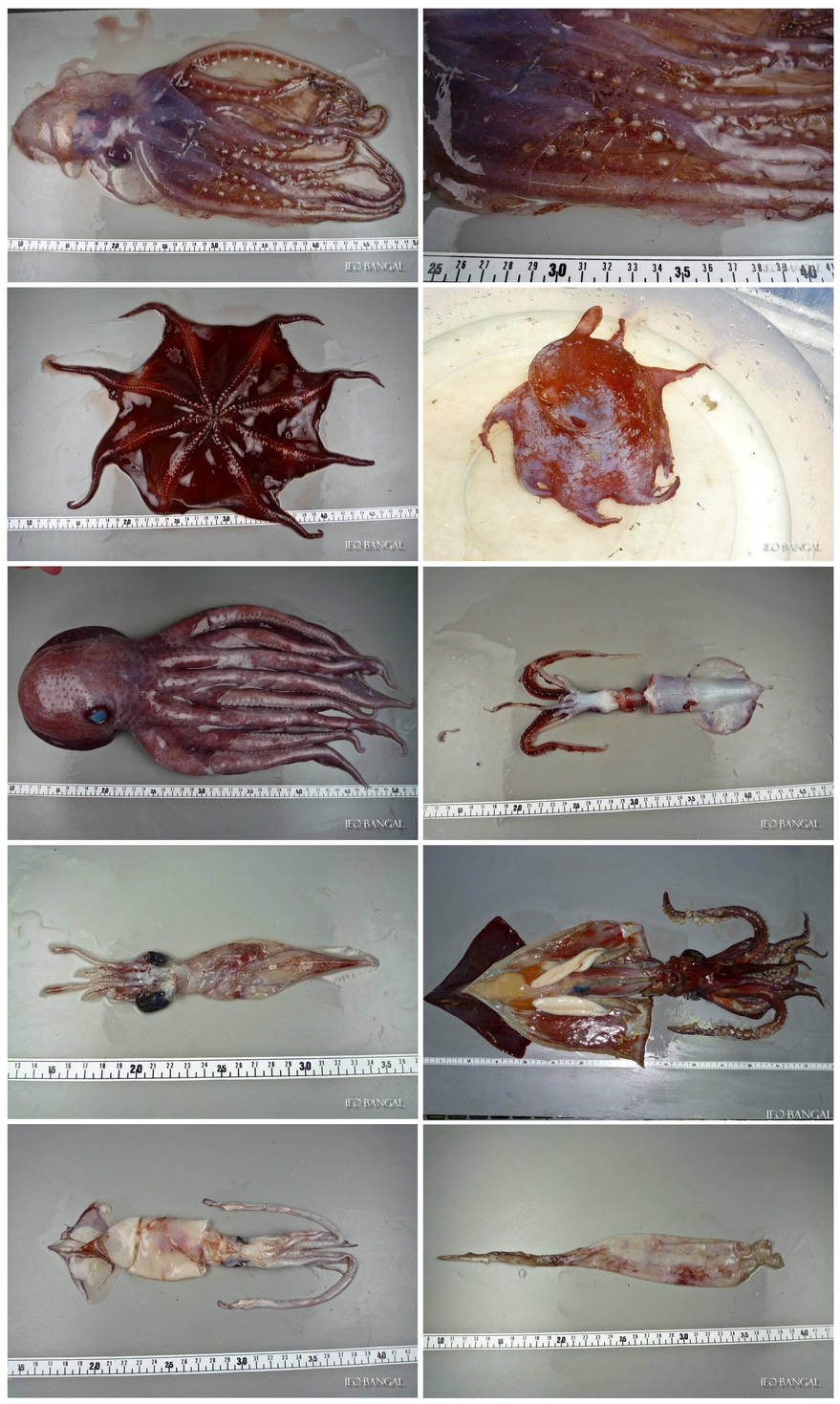


Figure 1. *Stauroteuthis syrtensis* Verrill, 1879
Figure 2. *Stauroteuthis syrtensis* Verrill, 1879
Figure 3. *Opisthoteuthis grimaldii* Joubin, 1903
Figure 4. *Opisthoteuthis grimaldii* Joubin, 1903)
Figure 5. *Graneledone verrucosa* (Verrill, 1881)
Figure 6. *Mastigoteuthis aff hjorti* Chun 1913
Figure 7. *Teuthowenia megalops* (Prosch, 1847)
Figure 8. *Todarodes sagittatus* (Lamarck, 1798). Mature female.
Figure 9. *Gonatus steenstrupii* Kristensen, 1981
Figure 10. *Taonius pavo* (Lesueur, 1821)

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